Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Spectrum Policy Task Force	)	**DA 02-1311**
Seeks Public Comment on Issues	)	**ET Docket No. 02-135**
Related to Commission's	)	
Spectrum Policies	)	

To: OET

REPLY COMMENTS OF

THE NEW AMERICA FOUNDATION,
THE CONSUMER FEDERATION OF AMERICA, CONSUMERS UNION,
THE ASSOCIATION OF INDEPENDENT VIDEO AND FILMMAKERS,
THE NATIONAL ALLIANCE FOR MEDIA ARTS AND CULTURE,
THE BENTON FOUNDATION, THE CENTER FOR DIGITAL DEMOCRACY,
UNITED CHURCH OF CHRIST, OFFICE OF COMMUNICATION, INC.,
AND THE MEDIA ACCESS PROJECT

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NAF, *et al.* observe that wide support exists for all the points raised in the initial comments, although not from all commentors. Indeed, many commentors agree with NAF, *et al.* on one substantive point (*e.g.*, increasing the availability of unlicensed spectrum) but not on others (*e.g.*, allowing greater flexibility).

To address the overall thrust of these comments, NAF, *et al.* offer the task force basic principles for balancing the competing goals of the Communications Act: enhancing competition, innovation, diversity of voices in the media, and ensuring a stable communications platform for all Americans.[1] Again, NAF, *et al.* stress that these principles and comments must be viewed as a ***whole***. Thus, for example, while NAF, *et al*. argue that the FCC should, to the greatest extent possible, avoid restrictive regulation and rely on marketplace dynamics, this does principle does not exist in isolation. Where the Commission has made a decision to license spectrum, it ***must*** ensure that the licensee continues to act as the steward of a public resource rather than as the recipient of a fee

[1] *See, e.g.*, 47 USC §§151, 257(b), 303(g).

simple absolute. Furthermore, where the Commission decides that it must, for good reason, deviate from auctions as the means of allocating licenses, it ***must*** impose sufficient conditions to ensure that the licensee acts in the public interest and does not receive an unjust enrichment in violation of the statute.

SUMMARY

The number of comments received by the task force – over one hundred – and the breadth of commentors – ranging from individuals to large corporations, equipment manufacturers, licensees, users of unlicensed spectrum and would-be innovators – demonstrates the importance of this proceeding. It also reveals the following broad trends.

1) A large number of commentors, including well-established equipment and software manufacturers, urge expanded allocations of spectrum for unlicensed communication and appear eager to invest in unlicensed applications, particularly in unlicensed broadband networking. (*See, e.g.,* Comments of Consumer Electronics Association, Cisco Systems, Microsoft, Rural Telecommunications Group, Motorola, Consumer Federation of America, Cingular, Ericsson, Wireless Ethernet Compatibility Alliance.)

2) A substantial number of commentors, including many technology companies that urge additional allocations for unlicensed uses, oppose the creation of permanent property rights in current spectrum assignments and support the Commission's continued authority and flexibility to regulate commercial licensees, particularly with respect to the relative rights and responsibilities of licensed and unlicensed users of the airwaves. (*See, e.g.,* comments of NAF, *et al.*, Cellular Telecommunications & Internet Association, AT&T Wireless, Cingular, XtremeSpectrum, Consumer Federation of America.)

3) There is considerable support for assigning any enhanced service flexibility to already licensed bands by competitive auction, as required by the Communications Act, and/or using spectrum user fees or other means to create efficiency incentives for commercial incumbents that have never paid for licenses. (*See, e.g.*, comments of NAF, *et al.*, Cellular Telecommunications & Internet Association, AT&T Wireless, Cingular, Nokia.)

4) There is substantial support for ensuring that incumbent commercial licensees do not receive a windfall profit as part of a transition to a more flexible, market-

oriented allocation system. (*See*, *e.g.*, comments of NAF, *et al.*, Cellular Telecommunications & Internet Association, Nokia, Ericsson.)

5) There remains continued substantial support for the principle that certain non-commercial services do not lend themselves to competitive assignment, such as public safety, public broadcasting, radio astronomy, and other allocations of spectrum that Congress or the Commission may from time-to-time set aside to serve the public interest, convenience or necessity. (*See, e.g.*, comments of America's Public Television Stations, National Public Radio, Catholic Television Network, NAF, *et al.*, APCO, Bell South, Consumer Federation of America.)

At the same time, many incumbents expressed rational concern pertaining to interference levels and the difficulty in enforcing Commission rules against interference if individual devices proliferate. While NAF, *et al.* agree that the Commission should safeguard existing services from harmful interference, the fear of such interference must not become a boogeyman that freezes any further innovation in wireless services.

While some incumbents posit "disaster scenarios" in which harmful interference drowns out all valuable service irretrievably or in which capital flees from the market due to uncertainty, the Commission should take these doomsday predictions with a healthy grain of salt. No one, certainly not NAF, *et al.*, has proposed immediately moving to an entirely unlicensed regime. The transition will continue gradually, as the technology matures.

More importantly, the Commission must not set a "zero tolerance" policy for interference based on today's equipment standards. This would provide the perverse incentive to licensees to maintain the lowest possible standard for transmitters and receivers in order to lock out competitors. At the same time, however, licensees must have assurance that their service will remain usable.

NAF, *et al.*, suggest the following principles guide the task force in striking the proper balance between protecting incumbents and allowing new services:

First, the Commission must recognize that requiring a license is a form of intrusive regulation. Accordingly, where the Commission does choose to license spectrum, it must do so in a manner that promotes the interest of the First Amendment. *Red Lion Broadcasting Co., Inc. v. FCC*, 395 U.S. 367, 387-95 (1969). By contrast, under the scheme set forth by NAF, *et al.* in their initial comments and below, permitting unlicensed use of the spectrum can directly facilitate the goals of the First Amendment by enhancing opportunities for civic discourse and innovation by private entrepreneurs.

Accordingly, the Commission should minimize the need for licenses wherever possible. It should reserve licensing only for those cases where a failure to license would produce "chaos." *Id.* It should adopt an express preference for unlicensed uses over licensed uses, and non-exclusive licenses (such as overlays and band-sharing) in preference to exclusive licenses.

Where the Commission considers new unlicensed services, the burden should fall to licensees to demonstrate that harmful interference will result. Furthermore, the Commission must consider reasonable tolerances for interference. It should not adopt a "zero tolerance" policy, or require those proposing new services to prove that no possibility for interference exists. Such a standard would make it impossible for innovators to expand the use of the spectrum and would provide incentive for incumbents to freeze receivers at the current level.

Second, to minimize intrusive regulation even further, the Commission should grant license holders flexibility to offer whatever services the current technology will support and the freedom to improve the efficiency of the service.

Third, where the Commission, for sound policy reasons, diverges from these principles (for example, to protect radio astronomy or provide adequate spectrum for safety bands), it must deviate as narrowly as possible. Exceptions should be limited to the barest necessary to fulfill the policy purpose of the deviation. Furthermore, the Commission must ensure that the beneficiaries of any such deviation have incentive to manage their spectrum efficiently and to continue to improve the technology. In all such cases, the Commission should state explicitly how such deviations service the public interest and impose adequate obligations on the beneficiaries to ensure that the stated public interest goals are achieved.

NAF, *et al.* address several specific comments of the National Association of Broadcasters and the Association for Maximum Service Television, Inc. (collectively "NAB"). Broadcasting occupies a unique place in the management of public spectrum. As a nation, the United States relies on its system of local broadcasters providing free, over the air television to provide every citizen with news and entertainment. This provides more than adequate reason why the Commission should hesitate to apply pure market allocation to broadcasting.

At the same time, this special relationship imposes special responsibilities: many of which the Commission and the courts have eroded over the years. More than any other licensees, broadcasters must serve as trustees of a public resource accountable to their communities, rather than as owners of a resource free to do as they wish. The continued breakdown of the system of localism through relieving broadcasters of their responsibilities to local communities (*e.g.*, eliminating meaningful local programming requirements, easing public file requirements), permitting greater levels of national

ownership, and a willingness by the Commission to allow broadcasters to personally profit from spectrum they received for free (in the Channel 60-69 decision) increasingly undercuts both the vital policies of localism and diversity and the ability of broadcasters to claim a special status as public trustees. Most of these concerns, however, lie outside the scope of this task force.

Of relevance, however, are the specific objections raised by the NAB. While the NAB properly points out that market allocation has limits, it draws the wrong conclusion from the history of unlicensed allocation and market-based allocations generally. In particular, the NAB's concern that investors will not materialize to take advantage of unlicensed spectrum or of very broad allocations is belied by many of the comments in this proceeding.

In addition, the NAB takes a far too conservative approach to the question of interference. While the experience of the AM band provides useful lessons, the NAB must recognize that the AM band was the earliest band exploited. The experience in AM must not become a "spectrum trauma" that freezes innovation. Nor should fear of multiplying point sources immobilize the Commission. Rather, any dangers can be addressed through the Commission's equipment certification standards (to require improvements in devices using unlicensed spectrum) and on the desire of equipment manufacturers to produce better receivers.

While NAB is correct that the Commission must provide incentives for spectrum efficiency to incumbents, it must not allow these incentives to constitute an unjust enrichment in violation of the statute. In this regard, NAF, *et al.* agree with NAB that the fee structure mandated by Congress for ancillary and supplementary services may

provide a useful model, especially where coupled with shorter license terms as urged by NAF, *et al.* in their initial comments.

Finally, it bears repeating that the Comments of Sprint and Cingular Wireless LLC (collectively "Sprint") urging the Commission to establish permanent, irrevocable property rights in spectrum run afoul of the plain language of the Communications Act. Section 301 makes clear Congress' intent to prohibit any ownership of the spectrum. Congress explicitly prohibited any such action in Section 304, requiring explicit waiver against the regulatory power of the United States as an inflexible condition of using the electromagnetic spectrum. No matter what the FCC's opinion on whether this Congressional policy choice continues to serve the American people (and NAF, *et al.* argue that it does)), it has no authority to substitute its own judgment for that of Congress. *MCI Telecommunications Corp. v. AT&T Co.*, 512 U.S. 218 (1994) (Commission may not eliminate tariffing requirement mandated by Congress, even where agency concludes requirement no longer serves the public interest).

Sprint's attempt to recast this as a matter of contract fly squarely in the face of this well established and quite explicit Congressional finding to the contrary. *See, e.g., In re Nextwave Personal Communications, Inc.*, 200 F.3d 43, 50-55 (2nd Cir. 1999) ("*Nextwave*"). Nor may the Commission consider Sprint's financial investment, as urged by Sprint. While the Commission can, and should, consider the effects of its decisions on the willingness of companies to invest generally, 47 USC §303(y)(2)(B), it may not consider the investment of a licensee as a determining factor. *FCC v. Pottsville Broadcasting*, 309 U.S. 134, 137-38 (1940); *FCC v. Sanders Bros. Radio Station*, 309 U.S. 470. 473-74 (1940). As the Supreme Court admonished long ago: "The public, not

some private interest, convenience, or necessity governs the issuance of licenses under the Act." *Ashbacker Radio Corp. v. FCC*, 326 U.S. 327, 333 (1945).

ARGUMENT

I. THE COMMENTS SUBMITTED TO THE TASK FORCE PROVIDE BROAD SUPPORT FOR NAF, *ET AL.*'S INITIAL COMMENTS.

As discussed in detail below, the range of commentors supporting the basic propositions advanced by NAF, *et al.* makes very clear that market will support all the reforms the initial comments recommended. Contrary to NAB and others, which argue that the Commission's previous authorizations of flexible licenses or unlicensed uses demonstrate little interest or ability to capitalize on these offerings, the comments submitted in this proceeding prove otherwise.

As detailed below, current licensees have filed comments demonstrating their eagerness and ability to take advantage of flexibility and offer new services to the Commission. At the same time, respected pioneers and innovators with lengthy track-records for success have filed comments demonstrating the maturity of unlicensed technologies and the ability to take advantage of greater unlicensed spectrum. Well established equipment manufacturers have supported these concepts, so that these innovators and entrepreneurs will have the depth of support needed to capitalize on Commission decisions to allow further unlicensed uses. Finally, many within the user community share NAF, *et al.*'s concern that the Commission's licensing policies acknowledge that licensees manage a public resource, and balance the need to provide flexibility and investor certainty with the need to recoup the value of the spectrum to the public and prevent any accumulation of property-like rights in spectrum use.

A. ENHANCED SERVICE FLEXIBILITY IS A NEW AND VALUABLE LICENSE RIGHT THAT MUST BE ASSIGNED BY COMPETITIVE AUCTION AND THAT SHOULD BE ACCOMPANIED BY SPECTRUM LEASE FEES

In their original Comments, NAF, *et al*. supported the general principle that spectral efficiency and consumer welfare can be enhanced by replacing the rigid "zoning" of spectrum allocated for commercial use with more flexible, market-based allocations. NAF, *et al.* also emphasized that the Communications Act requires that new or modified licenses granting service flexibility (including the right to change the service provided, or to sublease or sell access to the spectrum on secondary markets, without FCC review, during the limited term of the license) must generally be assigned by auction and in a manner that avoids the unjust enrichment of incumbent licensees.[2] Further, NAF, *et al.* emphasized that a number of auction and leasing fee methods are available to efficiently assign new flexible license rights among competing firms, to compensate the public who owns the spectrum, and to avoid "unjust enrichment." While Congress may choose to amend the Communications Act and promulgate a different path to spectrum allocation reform, the Commission is constrained by the Act to use a competitive means of assignment and ensure compensation to the public for any new and valuable license rights, with limited exceptions.

NAF, *et al.* note that other significant comments addressing this issue directly share this view. For example, the **Cellular Telecommunications & Internet Association (CTIA)** notes that "[i]t would be contrary to Section 309 of the

[2] With few exceptions Section 309(j) of the Communications Act requires the FCC to use auctions to award mutually exclusive applications for spectrum license rights assigned to commercial users. The enumerated objectives of spectrum auction policy specified by Congress in the 1996 Telecommunications Act include "recovery for the public of a portion of the value of the public spectrum resource made

Communications Act, and unfair to competitors" to award "flexible" rights to incumbents for free. In its comments CTIA states:

> CTIA submits that the best approach for the Commission to take when it determines that spectrum is being inefficiently used is to reallocate that spectrum, rather than resorting to the "easy fix" of giving inefficient or commercially non-viable incumbents flexibility to provide any service. . . . In general, CTIA supports "flexible" allocation and service rules that are established before spectrum is assigned or made available to new uses, when those rights can be factored into auction decisions. . . .
>
> When presented with a request for flexibility from an incumbent licensee for an entirely different service than the original licensed service, the FCC should first consider whether the request suggests that the spectrum is being underutilized, and should be a candidate for reallocation. . . . If the additional flexible service rights requested can be provided by independent companies, those rights must be auctioned. **It would be contrary to Section 309 of the Communications Act, and unfair to competitors who had paid dearly for their spectrum, to award such "flexible" rights to incumbents for free**.[3]

AT&T Wireless Services (AWS) likewise emphasized that incumbent licensees must not be granted more valuable spectrum rights, particularly service flexibility, without competitive assignment and compensation to the public. AWS states:

> Section 303(y) of the Communications Act permits the Commission to provide for such "flexibility of use" only if it makes an affirmative finding after public notice and comment that flexibility will further the public interest, will not deter investment in communications services and systems, and is consistent with international treaties.[4]
>
> In order to satisfy these requirements, flexibility should be granted only on a prospective basis. Retroactive grants of flexibility to incumbents infringe on other incumbent users' rights, . . . A request for retroactive flexibility often suggests that the incumbent licensee is not putting the spectrum to its highest and best use, in which case the appropriate response is to reclaim the spectrum in question, reallocate it, and assign it through competitive bidding.[5]

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available for commercial use and avoidance of unjust enrichment through the methods employed to award uses of that resource." 47 U.S.C. § 309(j)(3)(C).

[3] Comments of the Cellular Telecommunications & Internet Association, In the Matter of Spectrum Policy Task Force Seeks Comment, ET Docket No. 02-135, July 8, 2002, at 8-9 (emphasis added).

[4] 47 U.S.C. § 303(y).

[5] Ex Parte Comments of AT&T Wireless Services, Inc., In the Matter of Spectrum Policy Task Force, ET Docket No. 02-135, July 8, 2002, at 4-5. AWS also provides evidence that the Commission has recognized

Other commentors emphasized that competitive assignment and other "efficient use incentives" are particularly appropriate with respect to commercial incumbents that enjoy free use of scarce spectrum. The CTIA correctly notes that inefficient use of spectrum is a particular concern with respect to commercial users "that are less subject to market-based incentives to use their spectrum efficiently" because they "did not have to pay for their spectrum at auction."[6] In its comments, Nokia, Inc. notes that "[r]etroactive granting of flexibility to incumbents can put other existing commercial providers at a competitive disadvantage . . . [and] undermines the principle that the entity that values the spectrum most will pay accordingly."[7]

While NAF, *et al.* agree with these industry commentors that both the Act and good policy should preclude non-competitive or cost-free grants of flexibility or other valuable new license rights (such as ability to freely sublease or sell a license without FCC approval) to incumbents, they disagree with CTIA's suggestion that the competitive assignment of new, more flexible service licenses should necessarily be determined band-by-band using an "independent review" mechanism to identify and reallocate "Government or commercial spectrum that is being underutilized, or services whose needs could be met in other bands."[8] Rather, all commercial allocations should be re-licensed for limited, potentially renewable terms with flexible license rights. These new, more valuable and flexible license rights could be assigned competitively by auction, as

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that assignment by competitive bidding "provides numerous public benefits, including 'speed[ing] the development and deployment of new services . . . and encourag[ing] efficient use of the spectrum' by placing licenses in the hands of 'those parties who value them most highly' and are therefore most likely to 'introduce service rapidly to the public' [citations]." *Id.* at 7 and notes 15-16.

[6] *Id.* at 7-8.

[7] Comments of Nokia, Inc., In the Matter of Spectrum Policy Task Force, ET Docket No. 02-135, July 8, 2002, at 2-3.

the Communications Act requires, or Congress could decide to allow incumbent licensees an option to retain the new flexible license in exchange for paying an annual, market-based user fee. In either case, the Commission should begin from the premise that all future assignments (or renewals) of commercial licenses should combine service flexibility with market-based user fees.

At the same time, in moving toward service flexibility and market-based allocations, the Commission must be careful not to lengthen license terms or otherwise undermine the government's ability to reorder spectrum rights and responsibilities in the future as technologies and social needs change. Professor Jon M. Peha, associate director of the Center for Wireless and Broadband Networks at Carnegie Mellon University, was one of a number of commentors who warned about the dangers of implementing "flexibility" in a manner that created vested rights that might constrain the Commission's ability to accommodate change:

> [I]ncreasing the license-holder's flexibility also decreases the discretion of the regulator to adapt to new needs and new technologies. . . . . When extending flexibility, the Commission must similarly maintain enough authority to clear the way for the next important innovation – whatever it is. This is one reason why the Commission should *not* consider making spectrum rights permanent. Licenses must expire, so that regulators have the opportunity to introduce change.[9]

In their original comments, NAF, *et al.* argued that auction and user fee methods are available to accomplish the goals of spectrum allocation policy mandated by Congress. These statutory goals include the efficient assignment of new license rights among competing firms, compensating the public for use of a public resource, and avoiding

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[8] *Id* at ii.

[9] "More Market Mechanisms in Moderation," Comments of Jon M. Peha, In the Matter of Spectrum Policy Task Force, ET Docket No. 02-135, July 7, 2002, at 4.

"unjust enrichment." NAF, *et al.* emphasized that if new "flexible" license rights are assigned, and if auction winners (or current incumbents) are given an option to renew the license, then an ongoing lease fee should attach at that point (alternatively the incumbent can return the license for re-auction). Once service flexibility and secondary markets for spectrum are well established, lease fees can be imputed based on a modest percentage of the value evidenced by secondary market transactions for spectrum with similar propagation characteristics.

The use of ongoing user fees for spectrum serve several important objectives: first, to recover for the public an ongoing and market-based return on the public resource of spectrum; second, to provide a market-based incentive for spectrum use efficiency, particularly by incumbent licensees that have used the resource completely free of charge; third, to reduce the up-front auction cost of the new flexible license rights (and of new commercial assignments generally), since bidders would not be anticipating permanent cost-free control of the frequency; and finally, to encourage capital investment by giving the new incumbents an option to convert after the initial license term to a leasing arrangement with expectation of renewal.

NAF, *et al.* outlined two broad options for transitioning to this new allocation system based on flexible licenses, secondary markets, protecting incumbent capital investments, and charging all commercial licensees equally for use of spectrum. One would involve auctioning new license rights with service flexibility as an "overlay" license permitting any use that did not cause harmful interference to the incumbent service already operating on the band. Ideally the incumbent's protection from harmful interference would "wear away" after a reasonable number of years. While incumbents

would have every incentive to make the winning bid, if not winning bidders could be required to compensate incumbents for either reasonable relocation costs or for the depreciated value of their capital equipment. A trust fund from auction proceeds could facilitate this process, although under no circumstances should commercial incumbents receive a windfall or "pay-off" for returning a license.

A second option, more favorable to incumbents, could give current commercial incumbents an option to renew their license with enhanced rights, including service flexibility and the ability to sell or sublease (for the period of the license), in return for paying a market-based spectrum user fee to the public. A precedent for this approach is current law governing the allocation of TV channels for digital broadcasting. Congress granted broadcasters the flexibility to use a portion of their 6 MHz DTV channel for ancillary services (that is, for paid services separate from their obligation to broadcast a primary "free" signal), but provided that they must pay a market-based fee the FCC has set at 5 percent of gross revenue. Although giving incumbents an option to acquire flexible license rights by converting directly to a user fee (rather than by competitive assignment) would require Congressional authorization, it would at least link the goals of replacing spectrum "zoning" with flexible, market-based allocations while also ensuring "recovery for the public of a portion of the value of the public spectrum resource made available for commercial use. . . ."[10]

A third option for a transition to flexible, market-based allocations that also would achieve the various goals of the Communications Act was proposed in comments filed by Jon M. Peha, professor of electrical engineering at Carnegie Mellon University. Professor Peha explains why recent PCS auctions, in which "an auction-winner is likely

to pay an enormous one-time fee for access to spectrum and nothing thereafter," creates many problems.[11] His proposed solution is "to replace this one-time payment with annual spectrum fees; the winner of the auction is the entity that offers at auction to pay the highest annual fee for as long as it holds the license."[12] Correctly structured, an auction based on bidding a rental stream would lower barriers of entry to spectrum by amortizing the cost over future years, internalize an ongoing incentive for efficient use of the band, facilitate secondary markets, ensure the public a future recovery on the public resource, and allow licensees to simply return the spectrum for re-auction if in the future the private return is not sufficiently higher than the rental liability.

B. FILED COMMENTS EVIDENCE STRONG SUPPORT FOR ADDITIONAL ALLOCATIONS OF SPECTRUM FOR UNLICENSED USE AND FOR RULES THAT FACILITATE A SPECTRUM COMMONS.

NAF, *et al.* find it noteworthy that comments submitted to the Task Force demonstrate overwhelming support for designating additional frequency bands for use by unlicensed devices – and for "rules of the road" that foster innovation and unlicensed broadband networking in particular. Comments filed that explicitly support the allocation of additional bands of spectrum for unlicensed use, particularly to facilitate broadband wireless networking, include the following:

New America Foundation, Consumers Union, et. al.
Consumer Electronics Association
Cisco
Microsoft
Wireless Ethernet Compatibility Alliance
Nokia
Rural Telecommunications Group

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[10] 47 U.S.C. § 309(j)(3)(C).
[11] More Market Mechanisms in Moderation," Comments of Jon M. Peha, In the Matter of Spectrum Policy Task Force, ET Docket No. 02-135, July 7, 2002, at 3.
[12] Ibid.

Consumer Federation of America
Ericsson
Cingular
Motorola
David Reed, PhD, technologist
License-Exempt Alliance
IEEE802
Public Safety Wireless Network Program
Proxim
XtremeSpectrum
Information Technology Industry Council
Professor Jon M. Peha, Carnegie Mellon University
Kevin Werbach, editor, *Release 1.0*
Timothy J. Shepard, PhD, spectrum engineer
Charles Jackson, PhD, spectrum engineer and consultant

In contrast, the only commentors explicitly opposed to increased allocations of spectrum for unlicensed use represent a handful of incumbents such as Bell South and the Society of Broadcast Engineers. In addition, a number of other commentors urged caution concerning an expansion or liberalization of unlicensed use because of potential interference with incumbent licensed users. These commentors included:

NAB and Association of Maximum Service Television
Cellular Telecommunications and Internet Association (CTIA)
Satellite Industry Association
US GPS Industry Council
National Association for Amateur Radio (AARL)
Qualcomm
Private Radio Commenters

Among most of the above-listed proponents of expanding allocations of spectrum designated for unlicensed use, an implicit theme is opposition to any further move in the direction of creating private "property" rights in spectrum. Freezing today's antiquated spectrum "zoning" system into private property rights would be the death knell for the potential innovation, economic growth and democratic communication inherent in both expanded allocations of unlicensed spectrum and in expanded use of ultrawideband

technologies as an "underlay" service in licensed bands. Most of the comments support, explicitly or implicitly, a continuation of the current statutory regime with respect to licensing for *limited* terms and the regulatory authority of the Commission to reallocate licensed spectrum or to approve non-interfering emissions on licensed bands. For example, in its comments the **Consumer Electronics Association** states:

> [T]o the extent that spectrum is allocated by competitive bidding, the Commission should ensure that such a system does not impinge on the greater deployment of unlicensed devices, the sharing of spectrum among unlicensed and licensed uses, and the allocation of more spectrum exclusively to unlicensed use. Promoting and fostering unlicensed use, without restrictive rules beyond those necessary to avoid interference with licensed users, is directly in line with the Task Force's focus on market-oriented spectrum management.

Cisco Systems, Inc., echoed the recurring theme that the Commission must maintain its spectrum management authority and flexibility with respect to the relative rights and responsibilities of licensed and unlicensed users of the airwaves. "No licensee should be allowed to prevent other, non-interfering, uses of the spectrum," Cisco states.[13] **Microsoft**, in its comments, reinforced the notion that the Commission must preserve its authority to periodically refashion license rights, if necessary, to accommodate innovation and (it should be added) to serve "the public interest, convenience and necessity." Microsoft stated:

> The Commission should also intensify its efforts to determine whether new unlicensed devices and technologies can provide "underlay" services in licensed bands without causing harmful interference. Wideband technologies, for example, offer the promise of providing substantial

[13] Comments of Cisco Systems, Inc., In the Matter of FCC Spectrum Policy Task Force, July 8, 2002, p. 8. Cisco also supported "allowing licensees additional flexibility to use their spectrum as they see fit. . . . allowing them to resell all or portions of their licensed spectrum for the remainder of the license term (provided that there is no modification to the requirements, restrictions, and duration of the original authorization)." *Id.* at p. 9.

amounts of spectrum capacity without causing harm to incumbent licensees.

In contrast, the notion that permanent "property rights" should be created in hundreds of discrete frequencies would virtually preclude the possibility of adopting more spectrally efficient technologies, such as the combination of ultrawideband and software defined radio, that might emit packets that "trespass" across a great many bands. Although in theory each citizen or other user seeking to communicate could negotiate a "toll" for emitting on these privatized frequencies, the transaction costs would be prohibitive.

Since most of the comments listed above focused on current technologies, NAF, *et al.* wish to reiterate an important distinction made in their comments between today's 802.11 (Wi-Fi) technologies – which facilitate the wireless sharing of high-speed Internet connections – and the potential for ad hoc wireless networking known as "open spectrum." Much as the Amateur Radio Service has long operated as a "commons," a meshed network of smart devices has the potential to promote democratic communication through a "spectrum commons" operating on unlicensed spectrum. Leading engineers and entrepreneurs are already developing and deploying wireless communications networks, based on ad hoc, meshed architectures and Internet-like design principles, that are potentially far more extensive and spectrum efficient than today's WiFi systems.[14] Using smart "software-defined radios," nodes in unlicensed wireless networks can cooperate to dynamically share spectrum and to serve as repeaters for traffic between

[14] For a summary of the technical elements, economic impacts and implications for democratic values and individual autonomy, *see* Yochai Benkler, "Open Spectrum Policy: Building the Commons in Physical Infrastructure," presentation at the New America Foundation conference "Saving the Information Commons," May 10, 2002 (*http:// www.newamerica.net/Download_Docs/pdfs/Doc_File_122_1.pdf*).

nodes.[15] They can dynamically adjust power levels and coding schemes based on the behavior of other nodes.[16] Because each new user becomes a relay node that adds network capacity, as well as demand, the wide band communications and dynamic sharing envisioned by open spectrum pioneers could reuse spectrum far more efficiently than centralized cellular systems. Wireless bandwidth would therefore become less scarce and more ubiquitous.

Because this concept of "open spectrum" – and other wireless technologies that may emerge in the future – can enhance spectrum efficiency and promote unmediated citizen communication, the Commission should be careful not to allocate bands or promulgate "rules of the road" for unlicensed devices that tend to protect or lock in WiFi or any other current technology or service. Protocols to facilitate wireless networking on unlicensed spectrum must *not* come at the price of limiting the freewheeling innovation possible on the current "junk" band of unlicensed at 2.4 GHz; it is precisely the wide-open character of this band (or another, larger space designated in its place) that allows an entrepreneurial technology like WiFi to develop.

The Commission should not foreclose future innovation by placing service rule-like restrictions on the primary band available for unlicensed experimentation. Rather, as David Reed, a noted technologist and co-developer of Internet Protocol, stated in his comments, the Commission should encourage "a communications protocol that is independent of the underlying transmission architecture that enables internetworking of radio systems. Like the Internet protocol layer called IP, it ['radio IP'] should be as

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[15] See David P. Reed, "How Wireless Networks Scale: The Illusion of Spectrum Scarcity," Presentation to Silicon Flatirons Telecommunications Program, University of Colorado at Boulder, March 5, 2002 (http://www.reed.com/dprframeweb/dprframe.asp).

[16] Kevin Werbach, "Here's a Cure for the Broadband Blues," ZDNet, Nov. 28, 2001

simple as possible, while allowing the expression of the desired communications functionality."[17]

II. TO BALANCE THE PUBLIC INTEREST GOALS DEFINED BY THE COMMUNICATIONS ACT, THE COMMISSION SHOULD ADOPT BASIC PRINCIPLES.

In determining the path the Task Force must recommend, the Task Force must use as its touchstone the goals of the Communications Act of 1934. While the Communications Act requires the Commission to consider whether flexible use would "deter investment in communications services and systems, or technological development," and whether flexibility would result in "harmful interference," 47 USC §303(y)(2)(B)-(C), the Commission's primary duty is to make allocations that serve "the public interest." 47 USC §§303(y)(A), 307(a), 309(a), 310(d).

The Supreme Court has characterized the public interest as a "supple instrument" by which the FCC regulates the common asset of the electromagnetic spectrum . *Pottsville Broadcasting Co.*, 309 U.S. at 138. It includes within it the concepts of promoting competition, promoting diverse viewpoints on the airwaves, and promoting innovative uses of the spectrum. 47 U.S.C. §§151, 257(b), 301, 303(g); *FCC v. National Citizens Committee for Broadcasting*, 436 U.S. 775, 793-95 (1978).

Of importance, the public interest prohibits consideration of the individual private interest of incumbent licensees. *Sanders Bros*, 409 U.S. at 473. Nor does it allow the Commission to abandon its role as manager of the airwaves or to grant permanent rights to licensees. 47 USC §301. Further, while the FCC must prevent "***harmful*** interference," 47 USC §303(y)(C), it does not guarantee (or require the Commission to

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(http://zdnet.com.com/2100-1107-51165.html).

guarantee) zero interference to incumbent users. Indeed, such a "zero tolerance" policy would interfere with the Commission's responsibility to "provide for experimental uses of frequencies, and generally encourage the larger and more effective use of radio in the public interest." 47 USC §303(g).

A. The Commission Should Adopt Policies That Maximize First Amendment Principles By Favoring Unlicensed Use Over Licenses, Favoring Flexible Licenses Over Specific Service Assignments, and Favoring Market Based Allocations Over Other Forms of Allocation.

NAF, *et al.* therefore suggest principles to guide the Commission in setting its spectrum policy. The Commission should adopt policies that maximize First Amendment principles of civic discourse and innovation. For example, so long as the unlicensed spectrum scheme is properly designed, the Commission should adopt a presumption in favor of unlicensed uses over requiring licenses, since this minimizes the need for intrusive regulation and allows the greatest number of citizens to utilize the wireless spectrum.

Because the technology facilitating unlicensed uses remains in its infancy, however, the Commission must proceed cautiously. As the statute requires, the Commission must consider whether permitting additional unlicensed uses will create "***harmful*** interference." 47 USC §303(y)(C) (emphasis added). The burden, however, should lie with those seeking to deny others use of the wireless spectrum. Accordingly, the Commission should require incumbents to demonstrate that new unlicensed uses will result in harmful interference.

Similarly, where the Commission maintains a licensing scheme, it should seek to maximize the number of licensees through spectrum sharing or other techniques. Again,

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[17] David P. Reed, PhD, "Comments for FCC Spectrum Policy Task Force," July 8, 2002, p. 13

the burden should fall to those who seek to restrict the use of the wireless spectrum to show a genuine danger of harmful interference, rather than requiring those seeking to use the spectrum to demonstrate with certainty or near certainty that incumbents will suffer no interference.

The Commission has often expressed a desire to minimize regulation and rely on market forces for both allocation and to bring new services to market. The ability of market forces and competition to substitute for regulation depends upon having a sufficient number of competitors to protect citizens and ensure that the public interest goals of the Communications Act -- diversity, competition, and innovation – are met. Thus, to the greatest extent possible, the Commission should minimize barriers to wireless use, maximize the number of potential wireless innovators, and free those who do use the wireless spectrum to bring whatever services to the public that the market and the technology will support.

Again, NAF, *et al.* stress that the statute requires the commission to protect incumbents from "harmful" interference not merely from "interference." An incumbent should not be allowed to veto a new unlicensed use by showing that under some situations and circumstances, increasing unlicensed uses may result in some interference. Rather, the Commission should require those opposing more flexible uses of spectrum to show a genuine danger of harm, not merely a possibility of harm or even a likelihood of non-harmful interference.

Finally, while market-based allocations do not fit all situations they maximize the likelihood of efficient spectrum use. To paraphrase, all things being equal, market-based

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(http://www.reed.com/OpenSpectrum/FCC02-135Reed.html).

allocations are the worst and least efficient method for assigning licenses except for all the other methods.

NAF, *et al.* stress that "market oriented allocations" does not endorse the existing auction system. As NAF, *et al.* and others have explained at length in their initial comments, the current auction system requires huge up-front payments, excluding all but the wealthiest applicants, requiring parties to guess at the value of the spectrum for the long-term, and failing to recoup to the public the true value of the spectrum (or overcharging licensees). Rather, as explained by NAF, *et al.*, the Commission should make market-based allocations using a "lease" mechanism and shorter license terms to recoup the value of the spectrum to the public in accordance with Section 309(j) and promote spectral efficiency.

Finally, as discussed at length in their initial comments, NAF, *et al.* remind the Commission that the transition to more flexible, market oriented licenses must not work to convey to licensees an unjust enrichment. Thus, as regards to the Commission's ongoing *Secondary Market* proceeding, the Commission should consider the superiority of shorter licenses term operating on a lease model rather than allowing a licensee to recoup the public value of the spectrum via leasing the spectrum directly.

B. Where, For Sound Policy Reasons, the Commission Adopts Exclusive Licensing Requirements With Restricted Flexibility, Or Deviates From Market-Based Allocations, It Must Clearly State Why and Establish Rules that Ensure Service to the Public Interest, Spectral Efficiency, and Prevent Unjust Enrichment.

As NAF, *et al.* argued in their initial comments, the Commission has sound policy reasons for limiting a service to exclusive licenses and prohibiting flexibility. In their initial comments, and in more detail in Part III below, NAF, *et al.* suggest several reasons

why the Commission might not wish to follow the general guidelines outlined in Part II.A.

The Commission should explicitly recognize, however, that these cases, which previously constituted the rule, now constitute the ***exceptions.*** Accordingly, where the Commission determines that it should issue exclusive licenses, and where it acts to limit the flexibility of the licensee, it should clearly enunciate why only an exclusive, inflexible license will serve the public interest, and why market-based allocations would fail to produce the necessary public interest service. Especially where the Commission allocates a license for free, such as for broadcasters and non-commercial users, the Commission must explain clearly how it will recoup the value of the spectrum to the public and how it will prevent any unjust enrichment of the licensee, and how it will encourage spectral efficiency.

Thus, for example, it is perfectly sensible for the Commission to allocate spectrum for public safety use without charging public safety entities. In any such allocation, however, the Commission must make it clear that the licensee has an obligation to use the spectrum so allocated for public safety purposes and not for private gain. The Commission must consider rules that confine the use of the allocated band to its intended purpose, and explain why an exclusive grant is necessary (*e.g.*, because public safety has an extremely low tolerance for interference and the Commission should be extremely risk-averse in how it addresses public safety issues). The Commission should also consider how to require spectral efficiency without conveying an unjust enrichment. For example, it might require benchmarking against other wireless licensees

in the same or closely related bands, and might require upgrades of equipment on a regular basis.

While such a scheme is certainly more intrusive than creating a market incentive for a hypothetical licensee to lease spectrum, it has the virtue of avoiding unjust enrichment or encouraging inefficiency. Those who receive their licenses for free to serve the public good must accept greater restraints on their licenses. Otherwise, the public loses the full benefit of the spectrum.

In this regard, Congress' decision to give broadcasters flexibility to offer "ancillary and supplementary services" with digital spectrum is instructive. Congress required the Commission to (a) require that any broadcaster only offer such services consistent with its broadcasting obligations, maintaining the primacy and centrality of the mission of free over-the-air broadcasting, and (b) require any broadcaster offering such services to pay a regular fee to "recover for the public a portion of the value of the public spectrum resource" and "avoid unjust enrichment." 47 USC §336.

Similarly, when the Commission considers flexibility for licensees that have received their spectrum through non-market based allocations, the Commission should take steps to ensure that the purpose for the award remains primary to the licensee, that the Commission recovers value for the public where it allows flexibility, and that the Commission avoids any unjust enrichment.

III. ALTHOUGH THE NAB CORRECTLY OBSERVES THAT MARKET ALLOCATION WILL NOT ALWAYS SERVE THE PUBLIC INTEREST, IT ADOPTS A FAR TOO CONSERVATIVE APPROACH.

NAB raises several issues in its comments. Although they correctly observe that market allocations are no "silver bullet" for all issues pertaining to spectrum allocation,

they overstate the case considerably in opposing any form of market allocation in the future. Similarly, NAB draws the wrong conclusions from its overview of the Commission's past experiments in flexibility and unlicensed spectrum. NAB highlights previous attempts at flexibility or unlicensed use that yielded little interest, while ignoring cases where flexibility and unlicensed use has blossomed.

Furthermore, while NAF, *et al.* heartily agree that the Commission must avoid "management by waiver" and must monitor the evolution of wireless technology carefully to avoid harmful interference, the Commission must not adopt a policy so conservative that it stifles innovation in the spectrum. The difficulties in the AM band, the oldest band "colonized" for use, provide valuable lessons for populating future bands and future uses. They do not however, as suggested by NAB, require the Commission to approach each innovation or new use in a band as if it were the AM experience all over again.

A. The Commission Clearly Has The Power To Make Market Based Allocations, Including Allocation By Auction Where This Serves the Public Interest.

NAF, *et al.* observe that broadcasters more than any other licensee act as public trustees and stewards for their local communities. While this argues for affording broadcasters strong protection from interference and not awarding broadcasting licenses by market based allocations, it imposes a concomitant responsibility to impose clearly defined and strictly enforced public interest requirements. It also makes vigorous enforcement of the regulations safeguarding Congress' policy decision to create a free, over-the-air broadcasting system based in localism a critical priority.[18]

[18] Sadly, the Commission and the Courts have continued to erode the social bargain between broadcasters and the public engineered by Congress and blessed by the Supreme Court more than 70 years ago. The

Furthermore, even broadcasters should not be able to prevent new and innovative services in the wireless spectrum where these serve the public interest. For example, when the Commission proposed a new, low-power FM radio service, the Commission properly authorized its inception when NAB and other incumbent broadcasters produced no credible evidence of harmful interference. *See, e.g., in re Creation of a Low Power Radio Service*, 15 FCC Rcd 2205, *on Reconsideration*, 15 FCC Rcd 19208 (2000).

The NAB, however, has addressed its scope beyond broadcasting to licensing policy generally. Here, the NAB clearly overstates the case to say that the Communications Act prohibits market based allocation. To the contrary, Section 309(j) requires the Commission to use market based allocations where such methods would serve the public interest.

NAB correctly observes that the Commission is barred from considering the influx of revenue to the public treasury as part of its public interest analysis. However, this merely prevents the Commission from taking artificial steps to inflate spectrum prices or from justifying market-based allocations solely on the grounds that an auction will produce revenue for the Federal government. Where the Commission finds that market based allocations will serve the public interest by promoting spectral efficiency, it can certainly use auctions or other market based allocation systems.

Paradoxically, NAB argues that the failure of certain early auctions of flexible licenses to produce significant revenues argues against using auctions or flexible license

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problems of media concentration, erosion of defined public interest requirements that ensure that broadcasters serve their local communities, and the ongoing "rule by waiver" through which the Commission has allowed licensees to avoid those restrictions and responsibilities still in force fall outside the scope of this proceeding.

terms. But as NAB itself observes, the Commission does not hold auctions or use other market based allocations to increase revenue.

To the extent NAB argues that the failure of auctions of flexible licenses over five years ago indicates that market based allocations and flexible licenses can never work, the comments filed by would-be bidders for such licenses in this proceeding belie this argument. All of the evidence submitted to the Task Force speaks to the continued development of technology that makes unlicensed use and spectrum flexibility cost effective and efficient. Even examples from five years ago are hopeless outdated in evaluating today's technology and thus evaluating the ability and willingness of parties to take advantage of flexible licenses or unlicensed spectrum.

Finally, NAB ignores those services where unlicensed use and flexible licensing have provided an enormous boon. NAB gives only grudging recognition to the emerging WiFi industry and other innovations taking place in the Part 15 unlicensed bands. Nor does NAB comment on the investment by Sprint and others in MMDS and ITFS spectrum since the Commission granted flexibility for that service.

B. The NAB Proposes Far Too Conservative a Standard For Increasing Unlicensed Uses and License Flexibility.

NAB expresses legitimate concerns regarding interference, but proposes a far too conservative approach. NAB appears traumatized, however, by the experience of the AM band. As a result, it proposes a far too conservative approach that threatens to delay healthy innovation in wireless applications.

No one has proposed abandoning licensing entirely or immediately. To the contrary, NAF, *et al.* fully expect that the Commission will take a prudent and cautious approach, monitoring the results of changes to its rules before authorizing an expansion

of unlicensed uses. What NAF, *et al.* do propose, however, is that the Commission adopt policies that will avoid a deadlock of years while would-be innovators frantically attempt to prove a negative. No one can prove that a new unlicensed or flexible license use will ***never*** cause interference. Furthermore, even if a new licensed or unlicensed use causes some interference to incumbents, it may not significantly effect the quality of the service. For this reason, the Communications Act uses a standard of "harmful" interference, not simply interference.

In evaluating the experience of the AM band, the Commission must recall that the MA band was the first commercially "colonized" band. As a result, the technology used to expand uses in the band was crude, as were receivers. Effective monitoring methods did not exist. Today's technology, however, allows much more precision in both transmission and reception.

As a last resort, the Commission always retains the power to halt manufacture of particular wireless devices that exceed expected interference levels until the technology of the incumbent "catches up." But the Commission must be wary of any rule that provides the incumbent with incentive to freeze technology at the current levels.

IV. THE COMMENTS OF SPRINT AND CINGULAR ARGUING THAT THE COMMISSION MAY ASSIGN PERMANENT RIGHTS OF OWNERSHIP IN SPECTRUM VIOLATE THE COMMUNICATIONS ACT AND THE FIRST AMENDMENT.

Sprint Corporation and Cingular Wireless (collectively "Sprint") call for a drastic reinterpretation of the Communications Act, calling for recognition of an ownership right in what has always been properly regarded as public property. Sprint correctly notes that licensees obtain certain rights, such as exclusivity, which last for the duration of a license. It also points to the Commission's longstanding recognition of a "renewal

expectancy."

It is a gross misunderstanding to confuse these rights of licensees with a property interest in the underlying spectrum. The Communications Act has always prohibited any person or entity from owning any property interest in the spectrum which is assigned by FCC license. *FCC v. Sanders Bros Radio Station*, 309 U.S. 470, 475 (1940). The current version of the Act clearly states:

> No station license shall be granted by the Commission until the applicant therefore shall have waived any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same.

47 U.S.C. § 304. *See also* 47 U.S.C. §301 (purpose of Act to maintain control "over all channels of radio" and prohibit private ownership in same); *FCC v. NextWave Personal Communications, Inc.*, 200 F.3d 43, 50-53 (2nd Cir. 2000) (licenses are not property, "purchase" of license through auction does not convey property interest, and Congress and FCC retain full authority, including ability to amend or cancel license).

Section 309(j)(6) of the Communications Act expressly extends this principle to licenses acquired by auction. It provides in pertinent part that:

> Nothing in this subsection, or in the use of competitive bidding, shall—
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> > **(A)** alter spectrum allocation criteria and procedures established by the other provisions of this chapter;
> > **(B)** limit or otherwise affect the requirements of subsection (h) of this section, section 301, 304, 307, 310, or 606 of this title, or any other provision of this chapter (other than subsections (d)(2) and (e) of this section);
> > **(C)** diminish the authority of the Commission under the other provisions of this chapter to regulate or reclaim spectrum licenses;
> > **(D)** be construed to convey any rights, including any expectation of renewal of a license, that differ from the rights that apply to other licenses within the same service that were not issued pursuant to this subsection...

In accordance with these provisions, every applicant for an FCC license must execute a waiver which reads as follows:

> I hereby waive any claim to the use of any particular frequency as against the regulatory power of the United States because of previous use of the same, whether by license or otherwise, and request an authorization in accordance with this application.

See FCC Form 301, accessed at http://www.fcc.gov/formpage.html.

Nor does Sprint's claim below that licensees' investment in the technology and hardware needed for service give rise to a property right. The Supreme Court has rejected the proposition that investment in equipment based on an expectation that the regulatory scheme will remain constant gives rise to any sort of takings claim. *See, e.g., FCC v. Pottsville Broadcasting Co.*, 309 U.S. 134, 138 (1940) ("though investment in broadcasting stations may be large," Commission may reassign on renewal based on same public interest examination as initial issuance). *See also DirecTV, Inc. v. FCC*, 110 F.3d 816, 826 (D.C. Cir. 1996) (that DBS broadcasters have spent "millions of dollars" in reliance on previous rules did not make alteration of the rules impermissible). *See also Ashbacker Radio Corp. v. FCC*, 326 U.S. 327 (1945) (although Applicant has due process right to consideration of application, neither Applicant nor incumbent has a property right in the result).

The cases cited by Sprint pertaining to government contracts are thus entirely inapposite. A Commission license is not a contract. *In re Nextwave*, 200 F.3d at 50-53. It guarantees the licensee nothing beyond its face. Since that face includes a waiver as against the regulatory power of the United States, no regulatory action affecting future

license terms or changing the environment in which the licensee acts gives rise to a claim of the sort described by Sprint. *See Sprint Comments* at 11 n.33.

CONCLUSION

In their initial Comments, NAF, *et al.* advised the task force that wireless technology has evolved to a point where the Commission can chose to facilitate a new wireless revolution that will benefit all, or can chose a system that creates a class of incumbent licensees that profit privately from the public resource of the airwaves and shackles wireless technology so that it will continue to conform to the aging business models of the few incumbents. The Comments submitted by over a hundred others in this proceeding have shown that the vanguard of the wireless revolution wait in the wings, eager to pour their resources and expertise into expanding uses of the electromagnetic spectrum. NAF, *et al.* have provided suggested guidelines that will, if followed, allow the new wireless revolution to flourish and allow all Americans to enjoy the benefits or the public airwaves.

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